

-continued

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<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: Synthetic polypeptide

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Cys Leu Arg Pro Leu Tyr Ile Asp Phe Arg Lys Asp Leu Gly Trp Lys
20          25          30
Trp Ile His Glu Pro Lys Gly Tyr Asn Ala Asn Phe Cys Ala Gly Ala
35          40          45
Cys Pro Tyr Arg Ala Ser Lys Ser Pro Ser Cys Val Ser Gln Asp Leu
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Glu Pro Leu Thr Ile Val Tyr Tyr Val Gly Arg Lys Pro Lys Val Glu
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Gln Leu Ser Asn Met Ile Val Lys Ser Cys Lys Cys Ser
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<210> SEQ ID NO 11
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<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: Synthetic polypeptide

<400> SEQUENCE: 11

Met Gly Leu Asn Asp Ile Phe Glu Ala Gln Lys Ile Glu Trp His Glu
1           5           10          15
Glu Phe Ala Leu Asp Ala Ala Tyr Cys Phe Arg Asn Val Gln Asp Asn
20          25          30
Cys Cys Leu Arg Pro Leu Tyr Ile Asp Phe Arg Lys Asp Leu Gly Trp
35          40          45
Lys Trp Ile His Glu Pro Lys Gly Tyr Asn Ala Asn Phe Cys Ala Gly
50          55          60
Ala Cys Pro Tyr Arg Ala Ser Lys Ser Pro Ser Cys Val Ser Gln Asp
65          70          75          80
Leu Glu Pro Leu Thr Ile Val Tyr Tyr Val Gly Arg Lys Pro Lys Val
85          90          95
Glu Gln Leu Ser Asn Met Ile Val Lys Ser Cys Lys Cys Ser
100         105         110

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1. A recombinant transforming growth factor (TGF)- β monomer, comprising:

- (i) a cysteine to serine substitution at an amino acid residue corresponding to residue 77 of SEQ ID NO: 2;
- (ii) a deletion of the α 3 helix corresponding to amino acid residues 52-71 of SEQ ID NO: 2; and
- (iii) at least one amino acid substitution relative to a wild-type TGF- β monomer that increases net charge of the recombinant TGF- β monomer.

2. The recombinant TGF- β monomer of claim 1, further comprising at least one amino acid substitution relative to a wild-type TGF- β monomer that increases affinity of the recombinant TGF- β monomer for TGF- β type II receptor (T β RII).

3. The recombinant TGF- β monomer of claim 1, which is a human TGF- β 2 monomer, a human TGF- β 1 monomer, or a human TGF- β 3 monomer.

4. The recombinant human TGF- β 2 monomer of claim 3, wherein the at least one amino acid substitution that increases net charge of the monomer comprises:

- a leucine to arginine substitution at an amino acid residue corresponding to residue 51 of SEQ ID NO: 2;
- an alanine to lysine substitution at an amino acid residue corresponding to residue 73 of SEQ ID NO: 2; or
- both a leucine to arginine substitution at an amino acid residue corresponding to residue 51 and an alanine to lysine substitution at an amino acid residue corresponding to residue 73 of SEQ ID NO: 2.

5. The recombinant human TGF- β 2 monomer of claim 4, wherein the at least one amino acid substitution that increases affinity of the monomer for T β RII comprises a substitution at an amino acid residue corresponding to residue 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36,